U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-253 025-T

THE EFFECTS OF AUTOMOTIVE EXHAUST GASES ON NATIONAL HIGHWAY NUMBER 26, IN OSAKA, PART 3, SUPPLEMENTARY (3-25)

ENVIRONMENTAL PROTECTION AGENCY

1971

148242

PB 253 025-T

APTIC 40433 EPA-TR 458-74

Mizuhara, Kan, Miyagawa, Akira et al.
Hashimoto, Hiroshi, Muranaka, Hiro et al.
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[3-25 Osaka Kokudo 26-go Sen Endo ni Okeru Jidosha Haishutsu Gasu Jintai Eikyo Chosa, Somo 3. Tsuieki Seiseki]

Taiki Osen Kenkyu (J. Japan Society of Air Pollution), Vol. 6, No. 1, 1971, p. 163

Translated for the
ENVIRONMENTAL PROTECTION AGENCY
by
Translation Consultants, Ltd., Arlington, Virginia

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

BIBLIOGRAPHIC DATA SHEET	1. Report No. EPA TR74-458	2.	3. Recipient's Accession No.
4. Title and Subtitle Effects of Automotive Exhaust Gases on National Highway No. 25 In Osaka, Part 3, Supplementary			5. Report Date 1971 6.
7. Author(s) Kan Mizuhara, Hiroshi Hahimoto, Hiroyoshi Upshida et al			8. Performing Organization Rept. No.
9. Performing Organization Name and Address Translated from the Japanese by EPA			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address EPA ISD Translation Services Division Library RTP, NC 27711			13. Type of Report & Period Covered 14.

15. Supplementary Notes

Taiki Osen Kenkyu (Journal of the Japan Society of Air Pollution) 6(1):163 1971

16. Abstracts

17. Key Words and Document Analysis. 17a. Descriptors

Automobile Exhaust Fumes
Air Pollution Diseases
EPA ISD

17b. Identifiers/Open-Ended Terms

Exhaust emissions
Air Pollution Diseases

17c. COSATI Field/Group 06-F

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Exclusive permission granted to NTIS for the storage and distribution of this material.	UNCLASSIFIED	4
	20. Security Class (This Page) UNCLASSIFIED	22. Price 3.50

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Centered in the three public health offices of Naniwa, Nishinari and Sumiyoshi, Osaka City, which have jurisdiction over National Highway No. 26 in Osaka, an environmental survey and a survey of the effects on human beings was conducted from September through October, 1959 with the cooperation of relevant public organs. In addition, a supplementary survey was performed in September and October, 1960 covering a larger number of persons resident in the area. This covered a total of 987 persons.

1. Environmental Survey: Measurements of weather conditions (air temperature, humidity, wind direction and wind speed), and measurements of atmospheric carbon monoxide, sulfur oxides, nitrogen oxides, ozone, suspended soot and dust, and hydrocarbons were made with public damage patrol vehicles, air pollution measurement vehicles and automotive exhaust gas monitering stations. Measurements of atmospheric lead were made with high volume air samplers and traffic noise measurements were also made in 1960.

2. Awareness Survey: During 1969, 806 persons were surveyed while 987 persons were surveyed during 1970.

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* Osaka City [Illegible] Health Center

** Osaka City Nishinari Health Center

*** Osaka City, Sumiyoshi Health Center

3. Health Evaluation: Whole blood specific gravity, hemoglobin, carbon monoxide in exhaled air, blood lead levels, urinalysis, blood pressure measurements were made and chest x-rays, etc., were taken.

4. Conclusions: The air is polluted and noises are high as proportional to the traffic volume along the roadway. This has damaged the health of the residents. In particular, there have been changes in whole blood specific gravity and hemoglobin during the year.

Table 1. Air Pollution Status On the Roadway

測定項目		2 最高値	3 最低値	4 平均値
CO ppm	曝露 7	17.0 (24.6)	1.5 (5.1)	6.7 (13.7)
	対照 8	4.0 (3.3)	0.5 (2.3)	2.0 (2.7)
NO ppm	曝露 7	22.5 (66.2)	1.5 (9.2)	7.3 (19.9)
	対照 8	2.5 (12.0)	0.5 (2.5)	1.4 (4.4)
NO_2 ppm	曝露 7	2.2 (26.2)	0.4 (4.0)	3.1 (11.2)
	対照 8	2.7 (19.5)	0.2 (4.0)	1.6 (6.7)
THC ppm	曝露 7	1.7 (1.2)	2.1 (0.2)	2.7 (1.0)
	対照 8	(0.6)	(0.4)	(0.5)
5 ばいじん μg/m³ ハイボリューム	曝露 7	(2.12 (1.0.0))	215 (130.4)	(425 (222.2))
	対照 8	525 (430.7)	203 (120.2)	247 (201.1)
6 ばいじん中の鉛 μg/m³ ハイボリューム	曝露 7	0.11 (1.4)	1.73 (5.02)	2.05 (5.78)
	対照 8	4.20 (1.2)	0.45 (4.21)	1.59 (11.14)

9. ( )内は昭和44年度調査

Key:

1 - Measurement subject; 2 - Maximum value; 3 - Minimum value; 4 - Average value; 5 - Soot and dust $\mu g/m^3$, high volume; 6 - Lead in soot and dust $\mu g/m^3$, high volume; 7 - Exposed area; 8 - Control; 9 - Figures in ( ) from the 1969 survey.

Table 2. Complaint Rate In Awareness Survey. Above 10% response

Item	1970			1969		
	Exposed	Control	Difference	Exposed	Control	Difference
Eyes water	43.7	24.4	11.3	34.8	22.2	12.6
Eyes become red	29.8	15.0	15.8			
Exude matter from the eyes	26.3	14.4	11.9			
Much nasal discharge	21.3	10.6	10.7			
Nose becomes stuffed up	32.5	15.3	17.5			
[Illegible]	ill.	20.5	ill.			
Often feels uncomfortable	14.6	40.9	23.7			
Phlegm is black	57.5	27.9	29.6	53.9	29.2	24.7
Throat feels [Illegible]	59.7	37.1	22.6			
Sore throat	49.6	27.1	22.5			
[Illegible]	39.6	22.4	17.2			
Coughs	36.6	22.7	13.9			
Cough phlegm	37.6	20.6	17.0			
Cough phlegm on rising	20.1	19.0	10.1			
[Illegible]	30.0	13.8	16.2			
Susceptible to colds	42.4	26.2	16.2			
Colds last a long time	39.1	22.1	17.0			
[Illegible] the mouth	51.8	30.0	21.8			
[Illegible]	39.6	27.7	ill.			
[Illegible]	44.7	ill.	16.2	3 .5	25.3	10.3
Become dizzy often	36.5	25.6	10.1			
[Illegible]	52.9	39.7	13.2			
[Illegible]	30.5	17.1	13.4			
[Illegible]	42.5	25.0	17.5			
Feel languid	66.0	45.6	20.4			
[Illegible]	54.8	25.9	25.9	36.7	19.8	16.9
[illegible]	47.5	34.4	13.1			
[Illegible] becomes tired	55.5	39.1	16.4			
[Illegible]	40.5	22.7	17.8			
Waken at night	42.5	31.2	11.3			
Becomes irritable	57.3	30.3	27.9	50.0	34.0	16.0

Item	1970			1969		
	Exposed	Control	Difference	Exposed	Control	Difference
[Illegible]	43.7	22.9	ill.			
[Illegible]	28.8	12.4	11.4			
Gets headaches	41.6	24.7	16.9			
Has palpitations	31.8	18.8	13.0			
[Illegible] becomes higher	34.3	94.0	24.9	30.1	9.9	20.2
[Illegigle]	49.5	17.7	31.8			
[Illegible]	35.4	10.3	25.1			
Surprised by sounds	70.3	41.2	24.1			
Always hears sounds	80.1	59.1	21.0			
[Illegible] because there are many sounds	50.5	12.1	37.9			

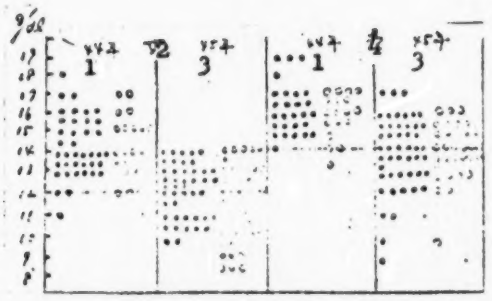

Figure 1. Hemoglobin Levels.

Key:

1 - 1969; 2 - Female; 3 - 1970; 4 - Male.